[10191/3698]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:
Frank MILLER et al.

For: ATOMIZATION SYSTEM

Filed: September 26, 2005

Serial No.: 10/530,922

Examiner: Steven J. Ganey

Art Unit: 3752

Confirmation No.: 9161

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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Signature: /Wendy Espinal/
Wendy Espinal

TRANSMITTAL FOR REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

SIR:

Accompanying this Reply Brief Transmittal is a Reply Brief pursuant to 37 C.F.R. § 41.41 for filing in the above-identified patent application. The two-month response date to the Examiner's Answer dated February 19, 2009 is April 19, 2009.

While no fee is believed to be due, the Commissioner is authorized to charge, as appropriate and/or necessary, any additional fees (including any extension fees) or credit any overpayment to Deposit Account No. **11-0600**.

Respectfully submitted,

Dated: April 6, 2009

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REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

SIR:

This paper is responsive to the "Examiner's Answer" dated February 19, 2009 in connection with the above-captioned application.

1. STATUS OF CLAIMS

Claims 1 to 15, and 18 have been canceled.

Claims 16, 17, and 19 to 31 are pending.

Claims 16, 17, 19 to 26, and 28 stand rejected under 35 U.S.C. § 102(b) as anticipated by International Published Patent Application No. WO 01/53675 ("Nau et al.").

Claims 16, 20, 22, 27, 28, 30, and 31 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 1,631,771 ("Sheather").

Claim 29 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Sheather.

2. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 16, 17, 19 to 26, and 28 are anticipated under 35 U.S.C. § 102(b) by Nau et al.

B. Whether claims 16, 20, 22, 27, 28, 30, and 31 are anticipated under 35 U.S.C. § 102(b) by Sheather.

C. Whether claim 29 is patentable under 35 U.S.C. § 103(a) over Sheather.

3. ARGUMENT

A. Rejection of Claims 16, 17, 19 to 26, and 28 Under 35 U.S.C. § 102(b)

Claims 16, 17, 19 to 26, and 28 stand rejected under 35 U.S.C. § 102(b) as anticipated by Nau et al. It is respectfully submitted that Nau et al. does not anticipate the present claims for at least the following reasons.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of Calif., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To the extent the Examiner may be relying on the doctrine of inherent disclosure in support of the anticipation rejection, the Examiner must provide a "basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied art." (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)). Thus, the M.P.E.P. and the case law make clear that simply because a certain result or characteristic may occur in the prior art does not establish the inherency of that result or characteristic.

Claim 16 relates to an atomization system for a fuel, including, *inter alia*, *a connecting tube* capable of receiving a temperature-adjusted substance stream; and *at least one metering device configured to meter fuel at at least one metering point into the connecting tube*; wherein, *the connecting tube has at least one atomization point located downstream of the at least one metering point*, and wherein *the metering device is a low pressure fuel injector*.

Nau et al. does not identically disclose, or even suggest, all of the claimed features of claim 16. Specifically, nowhere does Nau et al. identically disclose, or even

suggest, *a metering device configured to meter fuel at a metering point into a connecting tube*, as provided for in the context of claim 16. Instead, Nau et al. merely indicates an outlet opening 26 in the form of an atomizing nozzle, but does not indicate a metering device or a metering point. (Nau et al., ¶ 18).[1] In stark contrast to the assertion of the Advisory Action that the outlet opening 26 of Nau et al. "will meter the fuel through the screen flow valve nozzle," Nau et al. specifically states that "screen flow valves ... can be used for the atomizing nozzle." (Nau et al., ¶ 18). Therefore, nowhere does Nau et al. indicate that the outlet opening 26 is a metering device. Indeed, Nau et al. further indicates that its atomizing apparatus may be coupled to a separate and distinct metering system, in order to have "an advantageous spatial separation of the metering and atomization" and to reduce costs. (Nau et al., ¶ 28). Thus, Nau et al. specifically negates the Advisory Action's assertion that the outlet opening 26 may be a metering device. Therefore, Nau et al. does not identically disclose, or even suggest, *a metering device configured to meter fuel at a metering point into a connecting tube*, as provided for in the context of claim 16.

Even assuming, as suggested by the Final Office Action and Advisory Action, that the atomizing nozzle 26 is a metering point (which is not conceded), Nau et al. does not disclose *a connecting tube having an atomization point located downstream of a metering point*, as provided for in the context of claim 16. In this regard, the Final Office Action and Advisory Action assert that branch point 16 is an atomization point. However, this is apparently purely based on conjecture and speculation since Nau et al. nowhere refers to any atomization at branch point 16. Indeed, all discussion of branch point 16 in Nau et al. merely refers to mixing, but not atomizing. For example, ¶ 9 of Nau et al. states that "the gas/fluid mixture thus produced is reintroduced into the main gas flow [at branch point 16] and homogeneously mixed with it," ¶ 12 of Nau et al. states that "[i]t is also advantageous if as effective as possible a mixing of the partial gas flow and the main gas flow takes place at the junction point [16] at which the fluid-laden partial gas flow is reintroduced into the main gas flow," and ¶ 26 of Nau et al. states that "the fluid fuel is supplied ... via an atomizing nozzle [26] and arrives in the partial flow 21, 21' in a finely dispersed form [and] is mixed with the remainder gas flow 11a [at branch point 16]." (emphases added). Accordingly, Nau et al. merely refers to mixing at branch point 16, and refers to atomizing only at the atomizing nozzle 26. Therefore, Nau et al. does not identically disclose, or even suggest, *a connecting*

[1] Citations are to U.S. Patent Application Publication No. 2003/0077210, the publication of U.S. Patent Application Serial No. 10/181,479, which is the national stage of PCT/DE01/00163, published as WO 01/53675.

tube having an atomization point located downstream of a metering point, as provided for in the context of claim 16.

Further, Nau et al. also does not identically disclose, or even suggest, that *a metering device is a low pressure fuel injector*. Since Nau et al. does not indicate a metering device, as more fully set forth above, Nau et al. also does not indicate a low pressure fuel injector as a metering device. In this regard, in response to the Advisory Action's assertions that a "low pressure fuel injector" does not require limitations in the specification to give meaning to disputed terms and that the term "low pressure" has not been described in pressure values or ranges, it is respectfully submitted that the Substitute Specification further defines "low pressure fuel injector" at page 3, lines 7 to 17. Further, it is respectfully submitted that one of ordinary skill in the art would understand the term "low pressure fuel injector," as described in the Specification at page 3, lines 14 to 16 (stating that "fuel injectors are reliable components that ... are known in terms of their behavior[, which] is true especially of so-called low-pressure fuel injectors").

Moreover, the Examiner's Answer at pages 5 to 6 asserts that "no other limitations are recited further defining the fuel injector," and at page 7 asserts that the "low pressure fuel injector" is "not claimed explicitly." Appellants respectfully disagree. In this regard, claim 16, in fact, positively claims a "low pressure fuel injector," thereby further defining the fuel injector. In addition, as more fully set forth above, it is respectfully submitted that one of ordinary skill in the art would understand the term "low pressure fuel injector," as described in the Specification, without need for further description in terms of pressure values or ranges.

Furthermore, the Examiner's Answer at page 6 asserts that "fuel is inherently being metered or regulated through the screen flow valve." Appellants respectfully disagree. As more fully set forth above, nowhere does Nau et al. indicate that the screen flow valve is a metering device. Instead, Nau et al. merely indicate that a screen flow valve may be used as an atomizing nozzle. (Nau et al., ¶ 18). Further, Nau et al. indicate that its atomizing apparatus may be coupled to a separate and distinct metering system, in order to have "an advantageous spatial separation of the metering and atomization" and to reduce costs. (Nau et al., ¶ 28). Thus, Nau et al. explicitly negates the assertion of the Examiner's Answer that the screen flow valve may be a metering device.

Thus, Nau et al. does not identically disclose, or even suggest, *a metering device configured to meter fuel at a metering point into a connecting tube, a connecting tube*

having an atomization point located downstream of a metering point, or *a metering device is a low pressure fuel injector*, as provided for in the context of claim 16.

Accordingly, Nau et al. does not identically disclose, or even suggest, all of the features included in claim 16. As such, it is respectfully submitted that Nau et al. does not anticipate claim 16.

As for claims 17, 19 to 26, and 28, which ultimately depend from and therefore include all of the features included in claim 16, it is respectfully submitted that Nau et al. does not anticipate these dependent claims for at least the same reasons more fully set forth above.

Further, with respect to dependent claim 19, Nau et al. also does not identically disclose, or even suggest, that *a low pressure fuel injector is positioned at an end face of the connecting tube*. As more fully set forth above, since Nau et al. does not indicate a low pressure fuel injector, Nau et al. also does not disclose a low pressure fuel injector positioned at an end face of the connecting tube. In this regard, Nau et al. only indicates an atomization nozzle 26 at an end face of the premixing chamber 22. Therefore, it is respectfully submitted that Nau et al. does not anticipate dependent claim 19 for at least this additional reason.

Further with respect to dependent claim 20, Nau et al. also does not identically disclose, or even suggest, that *a metering point is formed on the low pressure fuel injector*. As more fully set forth above, since Nau et al. does not indicate either a metering point or a low pressure fuel injector, Nau et al. also does not disclose a metering point formed on the low pressure fuel injector. Therefore, it is respectfully submitted that Nau et al. does not anticipate dependent claim 20 for at least this additional reason.

Further, with respect to dependent claim 28, Nau et al. also does not identically disclose, or even suggest, that *a metering point and an atomization point are formed jointly on the low pressure fuel injector*. As more fully set forth above, since Nau et al. does not indicate either a metering point or a low pressure fuel injector and, in fact, teaches separate and distinct metering and atomization points, Nau et al. also does not disclose a metering point and an atomization point formed jointly on the low pressure fuel injector. Therefore, it is respectfully submitted that Nau et al. does not anticipate dependent claim 28 for at least this additional reason.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

B. Rejection of Claims 16, 20, 22, 27, 28, 30, and 31 Under 35 U.S.C. § 102(b)

Claims 16, 20, 22, 27, 28, 30, and 31 stand rejected under 35 U.S.C. § 102(b) as anticipated by Sheather. It is respectfully submitted that Sheather does not anticipate the present claims for at least the following reasons.

Sheather does not identically disclose, or even suggest, all of the claimed features of claim 16. Sheather merely indicates two supply pipes 14, 15, a mixing chamber 13, and a head 17 with slots 19, 20. (Sheather, page 1, lines 44 to 74). Further, Sheather states that the pipes 14, 15 may have "suitable valves." (Sheather, page 1, line 99). However, Sheather merely refers to a pipe 15 having an outlet end 16. (Sheather, page 1, lines 56 to 58). According to the Final Office Action, the pipe 15 constitutes a metering device. However, according to claim 16, the metering device is a *low pressure fuel injector*. There is no disclosure, or even suggestion, by Sheather that the pipe 15 is arranged as a *fuel injector* or a *low pressure fuel injector*.

Moreover, the Examiner's Answer at page 6 asserts that "no other limitations are recited further defining the fuel injector." Appellants respectfully disagree. In this regard, claim 16, in fact, positively claims a "low pressure fuel injector," thereby further defining the fuel injector. In addition, as more fully set forth above, it is respectfully submitted that one of ordinary skill in the art would understand the term "low pressure fuel injector," as described in the Specification, without need for further description in terms of pressure values or ranges. Furthermore, although the pipes 14, 15 of Sheather may include "suitable valves," as more fully set forth above, there is no disclosure, or even suggestion, by Sheather that the pipe 15 is arranged as a *fuel injector* or a *low pressure fuel injector*.

Accordingly, Sheather does not identically disclose, or even suggest, all of the features included in claim 16. As such, it is respectfully submitted that Sheather does not anticipate claim 16.

As for claims 20, 22, 27, 28, 30, and 31, which ultimately depend from and therefore include all of the features included in claim 16, it is respectfully submitted that Sheather does not anticipate these dependent claims for at least the same reasons more fully set forth above.

Further with respect to dependent claim 20, Sheather also does not identically disclose, or even suggest, that *a metering point is formed on the low pressure fuel injector*. As more fully set forth above, since Sheather does not indicate a low pressure fuel injector, Sheather also does not disclose a metering point formed on the low pressure fuel injector.

Therefore, it is respectfully submitted that Sheather does not anticipate dependent claim 20 for at least this additional reason.

Further, with respect to dependent claim 28, Sheather also does not identically disclose, or even suggest, that *a metering point and an atomization point are formed jointly on the low pressure fuel injector*. As more fully set forth above, since Sheather does not indicate a low pressure fuel injector and, in fact, teaches separate and distinct metering valves and atomization points, Sheather also does not disclose a metering point and an atomization point formed jointly on the low pressure fuel injector. Therefore, it is respectfully submitted that Sheather does not anticipate dependent claim 28 for at least this additional reason.

Further, with respect to dependent claim 31, Sheather also does not identically disclose, or even suggest, that *atomization points are at least in part located in rounded corners of an end face of the connecting tube*. Sheather merely indicates a continuously curved end face that does not include any corners. Thus, Sheather does not disclose an end face having rounded corners. Accordingly, Sheather also does not disclose atomization points at least in part located in rounded corners of an end face of the connecting tube. Therefore, it is respectfully submitted that Sheather does not anticipate dependent claim 31 for at least this additional reason.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

C. Rejection of Claim 29 Under 35 U.S.C. § 103(a)

Claim 29 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Sheather. It is respectfully submitted that Sheather does not render unpatentable claim 29 for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), the prior art must teach or suggest each element of the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990). In addition, as clearly indicated by the Supreme Court, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. See KSR Int'l Co. v. Teleflex, Inc., 127 S. Ct. 1727 (2007). Further, the Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. M.P.E.P. §2143.

Claim 29 depends from claim 16. As more fully set forth above, Sheather does not disclose, or even suggest, that *a metering device is a low pressure fuel injector*, as provided for in the context of claim 16.

Accordingly, it is respectfully submitted that Sheather does not disclose, or even suggest, all of the features included in claim 16, from which claim 29 depends. As such, it is respectfully submitted that Sheather does not render unpatentable claim 29, which depends from claim 16.

Further, with respect to dependent claim 29, Sheather also does not disclose, or even suggest, that *a low pressure fuel injector is inclined at a specified angle with respect to an axis of the tube and of the connecting tube*. As more fully set forth above, since Sheather does not indicate a low pressure fuel injector, Sheather also does not disclose a low pressure fuel injector inclined at a specified angle. Therefore, it is respectfully submitted that Sheather does not render unpatentable dependent claim 29 for at least this additional reason.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

4. CONCLUSION

For at least the reasons indicated above and those set forth in the Appeal Brief, Appellants respectfully submit that the art of record does not disclose or suggest the subject matter as recited in the claims of the above-identified application. Accordingly, it is respectfully submitted that the subject matter as set forth in the claims of the present application is patentable.

In view of all of the foregoing, reversal of all outstanding rejections is therefore respectfully requested.

Respectfully submitted,

Dated: April 6, 2009

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